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THE Fats and Oils SITUATION

BUREAU OF AGRICULTURAL ECONOMICS
UNITED STATES DEPARTMENT OF AGRICULTURE

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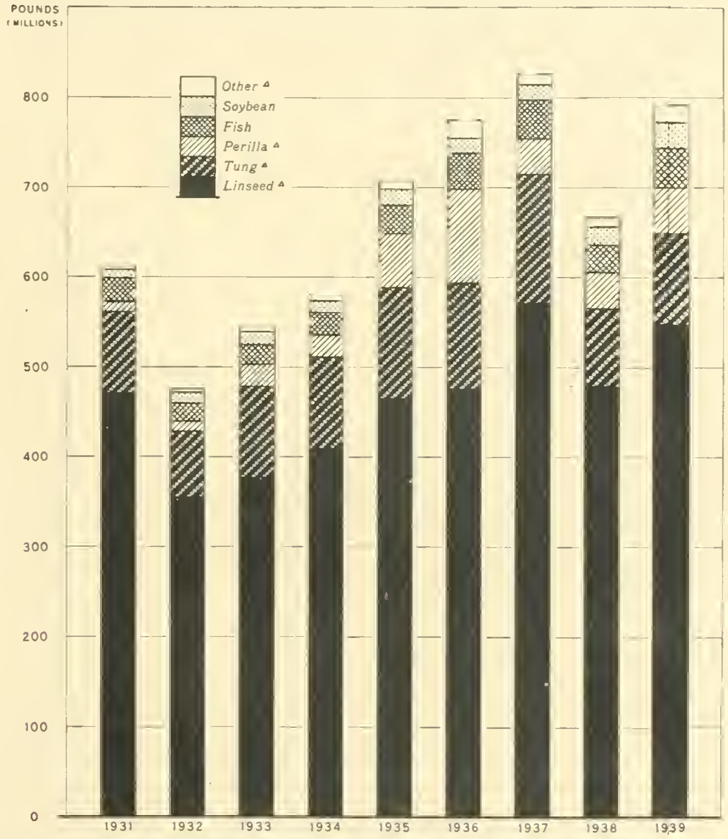
CONSUMPTION OF OILS IN THE DRYING INDUSTRIES. UNITED STATES, 1931-39



▵ SINCE DRYING OILS ARE USED DIRECTLY AS WELL AS IN FACTORY CONSUMPTION THESE FIGURES REPRESENT TOTAL DOMESTIC DISAPPEARANCE EXCLUDING THE SMALL QUANTITIES REPORTED BY THE BUREAU OF THE CENSUS AS USED IN SOAP, SHORTENINGS, AND MISCELLANEOUS PRODUCTS

U. S. DEPARTMENT OF AGRICULTURE NEG. 32740 BUREAU OF AGRICULTURAL ECONOMICS

As a result of increased industrial and building activity, total consumption of oils in the drying industries in the United States was about 18 percent larger in 1939 than in 1938. Despite difficulties in securing supplies of tung oil from China, more tung oil was consumed domestically in 1939 than in 1938, although such consumption was less than in the preceding five years. Present indications are that total consumption of drying oils in 1940 will be at least as large as in 1939.

Table 1.-Price per pound of specified fats and oils, and oil-bearing materials, April 1938 and 1939, and February-April 1940

Item	April		1940		
	1938	1939	Feb.	Mar.	Apr.1/
Fats and oils:	Cents	Cents	Cents	Cents	Cents
Butter, 92-score, Chicago	26.9	22.0	29.0	28.0	27.1
Oleomargarine, dom. veg., Chicago	15.5	14.5	15.0	15.0	15.0
Lard, prime steam, Chicago	8.2	6.3	6.1	5.8	6.1
Lard, refined, tubs, Chicago	9.4	7.3	6.7	6.5	6.4
Compounds (animal and veg. cooking fats), Chicago	10.3	9.2	9.5	9.6	9.4
Oleo oil, extra, tierces, Chicago	8.0	7.5	7.2	7.1	7.0
Oleostearine, bbls., N. Y.	6.7	6.2	6.4	6.3	6.1
Corn oil, crude, tanks, f.o.b. mills	7.2	5.9	6.1	6.1	6.2
Corn oil, refined, bbls., N. Y.	9.7	8.9	8.6	8.8	8.8
Cottonseed oil, crude, tanks, f.o.b. S.E. mills	6.9	5.5	6.0	5.9	5.9
Cottonseed oil, p.s.y., tank cars, N. Y.	8.2	6.6	6.9	6.7	6.8
Peanut oil, crude, tanks, f.o.b. mills	7.0	5.5	6.9	6.6	6.2
Peanut oil, dom. refined, bbls., N. Y.	10.1	9.0	9.6	9.6	9.3
Soybean oil, crude, tank cars, midwestern mills	5.9	4.7	5.4	5.7	5.5
Soybean oil, refined, drums, N. Y.	8.8	7.5	8.3	8.4	8.2
Babassu oil, tanks, N. Y.	6.4	6.1	6.3	6.2	6.2
Coconut oil, crude. tanks, f.o.b. Pacific Coast 2/	6.1	5.8	---	---	---
Coconut oil, edible, tanks, N. Y. 2/	8.6	7.4	7.4	7.4	7.2
Olive oil, edible, bbls. (drums), N. Y.	25.7	25.1	26.7	26.0	25.3
Olive-oil foots, prime, drums, N. Y.	8.6	7.0	8.3	8.3	8.2
Palm oil, crude, casks, (drums) N. Y. 2/	6.8	6.8	8.2	7.6	7.5
Rape oil, refined, bbls., N. Y. 3/	16.1	15.3	18.2	18.2	18.2
Sesame oil, refined, drums, N. Y.	10.2	9.1	11.6	14.7	16.0
Teaseed oil, crude, drums, N. Y.	7.6	9.5	12.5	12.0	12.4
Tallow, inedible, Chicago	4.6	5.0	5.0	4.6	4.5
Grease, A white, Chicago	5.0	5.1	5.1	4.6	4.6
Menhaden oil, crude, tanks, f.o.b. Baltimore	4.7	4.2	4.7	4.6	4.4
Sardine oil, crude, tanks, Pacific Coast	5.4	4.4	4.9	5.0	5.1
Whale oil, refined, bleached winter, drums, N.Y. 4/	9.9	8.2	12.5	12.5	12.[illegible]
Linseed oil, raw, tank cars, Minneapolis	9.3	8.7	10.1	10.3	10.3
Linseed oil, raw, carlots, bbls., N. Y.	9.6	9.0	10.4	10.7	10.9
Perilla oil, drums, N. Y. 3/	15.1	14.2	24.5	25.5	24.4
Oiticica oil, drums, N. Y.	10.7	10.1	20.2	19.8	18.8
Tung oil, drums, N. Y.	12.5	16.0	27.5	27.4	25.4
Castor oil, dehydrated, drums, carlots, N. Y.	---	---	18.1	18.1	18.1
Castor oil, No. 3, bbls., N. Y.	9.2	8.4	12.8	12.8	12.8
Cod-liver oil, med. U.S.P.bbls.,N.Y.(dol.per bbl.)	26.5	21.5	33.5	33.5	48.4
Cod oil, Newfoundland, bbls., N. Y.	6.7	4.3	9.6	9.0	---
Oil-bearing materials:					
Copra, bags, f.o.b. Pacific Coast	1.9	1.8	1.8	1.7	1.7
Cottonseed, Dallas (dol. per ton)	22.1	23.0	29.6	28.2	26.5
Flaxseed, No. 1, Minneapolis (per bu.)	199.0	189.0	214.0	208.0	211.0
Soybeans, No. 2 Yellow, Chicago (per bu.)	92.0	89.0	106.0	114.0	109.0

Compiled from Oil, Paint and Drug Reporter, The National Provisioner, Chicago Daily Trade Bulletin, Minneapolis Daily Market Record, and reports of the Agricultural Marketing Service and Bureau of Labor Statistics. 1/ Preliminary. 2/ Includes excise tax of 3 cents beginning May 10, 1934. 3/ Includes excise tax of 4.5 cents beginning August 21, 1936. 4/ Includes excise tax of 3 cents beginning July 1, 1939.

THE FATS AND OILS SITUATION

Summary

Factory production of fats and oils in the first 3 months of 1940, totaling about 2,247 million pounds was 17 percent greater than in the corresponding period of 1939. Lard and greases accounted for the major part of the increase. Net imports of fats, oils, and oil-bearing materials in terms of crude oil, totaled approximately 345 million pounds, 19 percent less than in the first quarter last year. Stocks of primary fats and oils increased during the quarter, and on March 31 were 7 percent larger than a year earlier.

The German invasion of Norway brought about a sharp rise in prices of medicinal cod-liver oil in domestic markets. More than half of the domestic requirements of cod and cod-liver oils usually are obtained from Norway, Germany, the United Kingdom, and Denmark, countries which now are not in a position to supply this market.

Prices of most other fats and oils in April differed little from those in March, although they were higher than in April 1939. Lard prices in April recovered the ground lost in March, but prices of lard, greases, beef fats, and coconut oil were somewhat lower in April this year than last, reflecting increased supplies of lard and greases in this country and of copra in the Philippines.

During 1939, 811 million pounds of fats and oils were consumed in the drying industries. This quantity was somewhat less than in 1937, but otherwise was the largest since 1929. All the principal drying oils, including tung, shared in the general increase in consumption, which occurred despite relatively small world supplies and high prices for the principal drying oils.

Increased residential building activity and industrial production in 1939 were mainly responsible for the increases in consumption. About 60 percent of the fats and oils consumed in the drying industries in 1939 were imported, or were derived from imported materials, as compared with about 70 percent in 1938 and 80 percent in 1937.

REVIEW OF RECENT DEVELOPMENTS

Prices of fats and oils little changed in April

Except for cod-liver oil, little change occurred in prices of most fats and oils in domestic markets during April. Butter prices were seasonally lower than in March, and prices of tung, perilla, and oiticica oils declined somewhat from the relatively high levels prevailing in recent months. Lard prices, on the other hand, regained the ground lost in March, with the average price of prime steam lard at Chicago advancing from 5.8 to 6.1 cents per pound. The price of sesame oil also advanced, evidently because of difficulties in securing supplies from abroad.

Coincidentally with the German invasion of Norway, the price of medicinal cod-liver oil advanced sharply at New York. The price of this oil averaged $48.40 per barrel in April compared with $33.50 in March, and $21.50 in April 1939. Present indications are that imports of cod and cod-liver oils will be sharply curtailed as a result of the war in Europe. In 1938, 63 percent of the 8,286,497 gallons of fish-liver oils imported by the United States originated in Norway, Germany, the United Kingdom, and Denmark, which in view of present hostilities in and around the North Sea are not likely to be in a position to supply this country with fish-liver oils for some time to come. Iceland, Japan, Newfoundland, and Canada supplied most of the remaining imports in 1938. If prices for cod-liver oil continue high, it is probable that greater care will be taken by United States and Canadian fishing fleets to preserve fish livers in a condition suitable for the production of medicinal oils than at present, although it is doubtful if much of the Canadian supply will be available to this country.

Prices of lard, grease, and beef fats in April were somewhat lower than a year earlier. The price of coconut oil also was slightly below that of a year ago. But prices of other fats and oils were generally higher in April this year than last, with domestic items 5-23 percent higher and imported items 2-125 percent higher. Among the domestic fats, butter and linseed oil showed the greatest relative gains over a year earlier; while among the imported fats, cod-liver, oiticica, perilla, tung, and sesame oils showed the greatest gains.

Production of fats and oils increased, net imports reduced in first quarter

Factory production of fats and crude oils, including creamery butter and estimates for oleo stock, totaled approximately 2,247 million pounds in the first 3 months of 1940 compared with 1,924 million pounds in the corresponding period of 1939, according to reports of the Bureau of the Census 1/ and Agricultural Marketing Service. 2/ Production in the first quarter this year thus was 323 million pounds or 17 percent greater than in the first quarter of 1939. Production from domestic materials accounted for about 89 percent of total factory production this year compared with 88 percent last year.

Lard and greases accounted for the major part of the increase in production. Lard showed a gain of 142 million pounds, or 42 percent, over a year earlier. Other fats showing substantial increases in output included soybean, coconut, linseed, cottonseed, and castor oils. Production of tallow, peanut oil, and fish oil, on the other hand, was reduced somewhat.

Imports of primary fats and oils during the first quarter of 1940 totaled 218 million pounds, 69 million pounds less than in the corresponding period of 1939. Exports, including shipments of butter and lard to United States territories, and reexports of foreign oils imported free of duty, totaled 124 million pounds, 26 million pounds more than a year earlier. Net imports of fats and oils thus were reduced from 189 million pounds in the first quarter of 1939 to 94 million pounds in the first quarter of 1940. Net imports of oil-bearing materials, in terms of crude oil, however, increased from 238 to 252 million pounds over this period. The combined net imports of fats, oils, and oil-bearing materials in terms of crude oil, nevertheless, were 81 million pounds, or 19 percent, smaller in the first quarter this year than last.

Substantial reductions in imports were recorded for palm oil, cottonseed oil, fish-liver oil, and perilla oil - also for flaxseed. These reductions were partly offset by gains in imports of tung oil, copra, and castor beans.

The most pronounced gains in exports occurred in soybeans and soybean oil, coconut oil, and cottonseed oil. Exports of lard in the first quarter this year were little different from those of a year earlier.

Factory and warehouse stocks of primary fats and oils increased during the quarter under review, and on March 31, 1940, totaled approximately 2,563 million pounds, 157 million pounds, or 7 percent, more than a year earlier. Stocks of lard, tallow, and greases were considerably in excess of those of a year earlier, but stocks of butter and whale oil were smaller.

1/ Preliminary statistics of the factory production and consumption, imports, exports and stocks of animal and vegetable fats and oils for the 3-month period ending March 31, 1940; also, Animal and Vegetable Fats and Oils, annual.

2/ Creamery Butter and American Cheese Production Estimates, monthly.

THE DRYING OILS: RECENT TRENDS

Consumption of drying oils increased for all classes of products in 1939

Approximately 811 million pounds of fats and oils were used in the drying industries in the United States in 1939. This quantity was about 138 million pounds, or 20 percent, larger than in 1938, and was the second largest since 1929, when over 900 million pounds were used. Consumption in the drying industries represented about 8 percent of the total domestic consumption of fats and oils for all purposes in 1939.

Paints and varnishes accounted for about 84 percent of the total consumption of fats in the drying industries in 1939, linoleum and oilcloth 13 percent, and printing inks 3 percent. The use of fats and oils in the manufacture of linoleum and oilcloth showed the greatest relative gain in 1939 over 1938, with an increase of 26 percent. Utilization in paints and varnishes increased about 20 percent, and in printing inks 5 percent.

The upswing in residential building activity that occurred during 1939 was mainly responsible for the marked gains in consumption of drying oils. Increased activity in certain industrial lines wherein drying oils are fairly widely used also was a factor.

The general strength in demand is indicated by the fact that the 20 percent increase in total consumption of drying oils in 1939 was accompanied by significant price advances. The average price of linseed oil was about 2 percent higher than in 1938, while prices of perilla, oiticica, and tung oils averaged 9, 35, and 56 percent higher respectively.

All the important drying oils shared in the general increase in consumption in 1939. Consumption of linseed oil, at 549 million pounds, was 69 million pounds greater than in 1938. Consumption for drying purposes of tung oil and oiticica oil was up 14 million pounds, fish oils 13 million pounds, perilla oil and soybean oil 9 million pounds, and castor oil (dehydrated) 5 million pounds.

Perilla, fish, soybean, oiticica, and castor oils collectively made up 19 percent of total consumption of fats and oils in the drying industries in 1939 compared with 15 percent in 1938 and 8 percent in 1931. The percentage contribution of linseed and tung oils decreased. Linseed oil made up 68 percent of total consumption in 1939 compared with 71 percent in 1938 and 77 percent in 1931. Tung oil accounted for 12 percent of the total in 1939 compared with 13 percent in 1938 and 15 percent in 1931. (Table 8.) The increased use of substitutes for the two principal drying oils, linseed and tung, has been made possible by the rapid progress of chemical technology in the drying industries in recent years.

Major part of drying oils imported

About 60 percent of the fats and oils consumed in the drying industries in 1939 were imported, or were derived from imported materials. Slightly more than half the linseed oil used, nearly all of the tung oil, and all of the perilla oil, oiticica oil, and castor oil was of foreign origin. (Table 3.)

Imports of tung oil, valuable for its high water-proofing and quick-drying properties, were restricted to a considerable extent during 1939 by military operations in China. Net imports of tung oil declined from 168 million pounds in 1937, largest on record, to 103 million pounds in 1938 and to 73 million pounds in 1939. Consumption of tung oil, with fairly heavy withdrawals from stocks, was larger in 1939 than a year earlier, though not so large as in 1937.

Requirements for a quick-drying oil forming a hard, water-resistant film, were greater in 1939 than the available supply of tung oil, with the result that consumption of oiticica oil and dehydrated castor oil, which possess drying properties somewhat similar to those of tung oil, was increased sharply. Linseed and other drying oils apparently also were used to some extent, either in mixtures with tung oil or alone with resins, to supplement tung oil in applications for which that oil is especially well suited.

World supplies of drying oils below average

A combination of factors has been responsible for the comparatively high prices for drying oils in the United States in recent months. The domestic demand for such oils has been relatively strong, ocean-shipping costs have been high, and available world supplies have been below average. Deterioration in the flaxseed crop in Argentina and the perilla seed crop in Manchuria last fall, and difficulties created by the Japanese with respect to exports of tung oil from China, have been mainly responsible for the limited supply situation.

World production of flaxseed (excluding production in the Soviet Union and China, for which recent data are not available) totaled about 100 million bushels in 1939 compared with 99 million bushels in 1938 and an average of 112 million bushels for the previous 10 years. Production in Argentina, totaling about 44 million bushels, was 11 million bushels less than the relatively low production in 1938 and was the lowest in many years. Production in the United States, however, increased sharply in 1939, with the increase slightly more than offsetting the reduction in Argentina in that year. (Table 9.)

The latest official report for Manchuria places the 1939 crop of perilla seed in that country at 154 million pounds compared with 256 million pounds in 1938, and an average of 247 million pounds for the previous 5 years. (No data are available for years prior to 1933.) In addition to production in Manchuria, 10-12 million pounds of perilla seed are produced annually in Chosen and Japan. (Table 10.)

Total exports of tung oil from China, including exports to Hong Kong for transshipment to the United States and other countries, amounted to only 74 million pounds in 1939 compared with 153 million pounds in 1938 and a 10-year average of 156 million pounds. (Table 11.)

In the following table, seed-production figures have been reduced to oil equivalents, and the foregoing data are summarized together with production figures for oiticica oil in Brazil. Despite the sharp increase that has taken place in oiticica oil production during the past 5 years, the quantity produced is still small in comparison with world production of other drying oils.

Table 2.- World production or exports of specified drying oils, and oil-bearing materials in terms of oil, average 1925-34, annual 1935-39

Period and year	Flaxseed, production excluding U.S.S.R. and China 1/	Tung oil, exports, China	Perilla seed, production, Manchuria and Chosen 2/	Oiticica oil, production, Brazil	Total
	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.
Average 1925-34	2,181	131	3/ 50	4/	2,362
1935	1,959	163	152	1	2,275
1936	2,107	191	133	14	2,445
1937	1,866	227	102	5	2,200
1938	1,830	153	98	32	2,113
1939 5/	1,848	74	61	6/ 37	2,020

Basic data compiled from official sources and reports of the International Institute of Agriculture. Production of flaxseed and perilla seed by countries, and exports of tung oil from China, by countries of destination, are shown in tables 9-11.

1/ Oil equivalent, 33 percent of the actual weight of flaxseed.
2/ Oil equivalent, 37 percent of the actual weight of perilla seed.
3/ Average 1933-34. Production data for Manchuria are not available for years prior to 1933.
4/ Less than 500,000 pounds.
5/ Preliminary.
6/ Rough approximation based on unofficial data.

Production of hempseed is an important factor in the world supply of drying oils, even though practically no hempseed or hempseed oil is now imported by the United States. Unfortunately, production figures for the Soviet Union and China, the two largest producing countries, are not available for recent years.

Largely because of the relatively short supplies and high prices of the principal drying oils, increasing use has been made in the past year of soybean oil, fish oils, and castor oil (dehydrated) for drying purposes. Production of soybeans in the United States has increased sharply in recent years, and promises to increase further. Castor bean production in Brazil also has shown a sharp upward trend. However, if weather conditions in Argentina and Manchuria are more nearly normal this year than they were last year, it is possible that the need for semi-drying oils to supplement linseed and perilla oils will be somewhat less pressing in 1941 than at present, although there may continue to be fairly large requirements for tung oil substitutes.

Table 3.- Estimated consumption of principal oils in the drying industries according to origin of raw materials, United States, 1931-39

Calendar year	Linseed oil 1/		Tung oil		Perilla oil, imported	Fish oil, domestic	Soybean oil, domestic	Oiticica oil, imported	Castor oil, imported	Sum of seven items			Imports as pct. of total
	Imported	Domestic	Imported	Domestic						Imported	Domestic	Total	
	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Pct.
1931	239	232	90	---	11	27	9	2/	2	342	268	610	56.1
1932	158	196	74	3/	11	20	12	2/	2	245	228	473	51.8
1933	242	134	102	3/	25	22	14	2/	2	371	170	541	68.6
1934	304	105	112	3/	24	25	13	2/	3	443	143	586	75.6
1935	312	153	124	3/	60	32	18	2/	4	500	203	703	71.1
1936	305	173	115	3/	105	40	17	3	5	533	230	763	69.9
1937	471	100	143	3/	39	44	17	4	8	665	161	826	80.5
1938	325	155	87	3/	41	30	19	5	7	465	204	669	69.5
1939 4/	305	244	100	1	51	43	28	19	12	487	316	803	60.6

Linseed, tung, and perilla oils - total domestic disappearance, excluding small quantities reported by the Bureau of the Census as used in soap, shortenings, and miscellaneous products; fish, soybean, and castor oils - factory consumption, Bureau of the Census; oiticica oil - imports for consumption, Bureau of Foreign and Domestic Commerce.

1/ Net imports of flaxseed were taken as a percentage of total domestic crushings to obtain an indication of the proportion of linseed oil consumption to be allocated to imports.

2/ Imports not separately reported.

3/ Consumption of domestically-produced tung oil included in preceding column. Unofficial estimates indicate that domestic production of tung oil prior to 1939 amounted to less than 500,000 pounds except in 1936 and 1938.

4/ Preliminary.

Table 4.- Estimated total consumption of fats and oils in the drying industries, United States, 1935-39

Item	1935	1936	1937	1938	1939
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Linseed oil 1/	465,021	478,026	570,788	479,813	548,690
Tung oil 1/	124,174	115,125	143,470	87,405	100,980
Perilla oil 1/	60,290	105,260	38,776	41,487	50,938
Fish oil	32,470	39,636	44,340	29,781	42,570
Soybean oil	17,871	17,419	17,157	18,847	28,220
Castor oil	4,058	4,990	8,368	6,796	11,844
Oiticica oil 2/	---	2,892	3,631	5,301	18,867
Coconut oil	381	772	1,126	424	710
Cottonseed oil	49	49	210	352	243
Rape oil	192	181	139	134	79
Corn oil	329	123	89	118	155
Palm oil	2	3	3	10	6
Olive-oil foots	---	---	---	3/ 6	3/ 14
Sunflower oil	310	97	4/	4/	4/
Other vegetable oil 5/	1,929	11,372	1,524	2,133	7,158
Grease	426	562	659	565	497
Tallow, inedible	115	142	158	121	102
Marine mammal oil	38	28	18	33	40
Neat's-foot oil	158	8	16	11	28
Tallow, edible	2	2	2	2	1
Lard	4	5	3	2	2
Oleo oil	---	---	---	2	---
Oleostearine	---	---	---	---	2
Total	707,819	776,692	830,477	673,343	811,146

Compiled from reports of the Bureau of the Census, except as otherwise noted. Data for earlier years beginning 1931 are given in The Fats and Oils Situation for May 1939.

1/ Since drying oils are used directly as well as in factory consumption, these figures represent total domestic disappearance excluding small quantities reported by the Bureau of the Census as used in soap, shortening, and miscellaneous products.

2/ Imports for consumption from official records of the Bureau of Foreign and Domestic Commerce. Not separately reported prior to January 1936.

3/ Reported as "olive oil, inedible".

4/ If any, included with "other vegetable oil."

5/ May include some oiticica oil; hence some duplication.

Table 5.-Estimated consumption of fats and oils in paints and varnishes, United States, 1935-39

Item	1935	1936	1937	1938	1939
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Linseed oil 1/	408,946	412,982	482,295	407,614	463,141
Tung oil 1/	111,770	105,663	133,510	81,190	95,112
Perilla oil 1/	49,812	85,603	28,971	32,773	38,265
Fish oil	18,251	23,166	27,277	15,679	24,981
Soybean oil	13,003	14,471	16,143	15,183	21,720
Castor oil	3,480	3,766	6,455	5,283	11,439
Oiticica oil 2/	---	2,892	3,631	5,301	18,867
Coconut oil	379	771	1,124	422	707
Cottonseed oil	36	34	43	184	51
Rape oil	168	168	138	131	79
Corn oil	329	123	89	118	155
Palm oil	1	1	---	1	1
Olive-oil foots	---	---	---	3/ 6	3/ 14
Sunflower oil	310	97	4/	4/	4/
Other vegetable oil 5/	1,929	4,614	1,498	1,912	5,816
Grease	77	94	150	144	47
Tallow, inedible	106	135	151	117	97
Marine mammal oil	34	17	11	28	36
Neatsfoot oil	157	7	15	9	24
Oleo oil	---	---	---	2	---
Total	608,788	654,604	701,501	566,097	680,552

Compiled from reports of the Bureau of the Census, except as otherwise noted.

1/ Since linseed, tung, and perilla oils are used directly as well as in factory consumption, these figures represent total domestic disappearance excluding quantities reported by the Bureau of the Census as factory consumption in linoleum, oilcloth, and printing ink, and small quantities used in soap, shortening, and miscellaneous products.
2/ Imports for consumption, from official records of the Bureau of Foreign and Domestic Commerce. Not separately reported prior to January 1936.
3/ Reported as "olive oil, inedible".
4/ If any, included with "other vegetable oil".
5/ May include some oiticica oil; hence, some duplication.

Table 6.- Factory consumption of fats and oils in the manufacture of linoleum and oilcloth, United States, 1935-39

Item	1935	1936	1937	1938	1939
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Linseed oil	41,809	50,076	68,151	55,395	68,023
Fish oil	13,865	16,235	16,765	13,848	17,385
Perilla oil	9,650	17,717	8,053	6,952	10,758
Tung oil	10,391	7,131	7,198	4,131	3,763
Soybean oil	4,816	2,886	934	3,605	6,438
Castor oil	477	1,066	1,653	1,313	88
Rape oil	23	13	---	2	---
Other vegetable oil	---	6,758	9	115	1,264
Grease	---	---	---	1	1
Tallow, inedible	---	---	---	---	1
Total	81,031	101,882	102,763	85,362	107,721

Compiled from reports of the Bureau of the Census.

Table 7.- Factory consumption of fats and oils in the manufacture of printing inks, United States, 1935-39

Item	1935	1936	1937	1938	1939
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Linseed oil	14,266	14,968	20,342	16,804	17,526
Tung oil	2,013	2,331	2,762	2,084	2,105
Perilla oil	828	1,940	1,752	1,762	1,915
Fish oil	354	235	298	254	204
Castor oil	101	158	260	200	317
Cottonseed oil	13	15	167	168	192
Soybean oil	52	62	80	59	62
Palm oil	1	2	3	9	5
Rape oil	1	---	1	1	---
Coconut oil	2	1	2	2	3
Other vegetable oil	---	---	17	106	78
Grease	349	468	509	420	449
Marine mammal oil	4	11	7	5	4
Tallow, inedible	9	7	7	4	4
Tallow, edible	2	2	2	2	1
Lard	4	5	3	2	2
Neat's-foot oil	1	1	1	2	4
Oleostearine	---	---	---	---	2
Total	18,000	20,206	26,213	21,884	22,873

Compiled from reports of the Bureau of the Census.

Table 8.- Percentage contribution of principal items to the total weight of fats and oils used in the drying industries, United States, 1931-39

Item	1931	1932	1933	1934	1935	1936	1937	1938	1939
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Total drying industries									
Linseed oil	77.1	74.6	69.0	69.4	65.7	61.6	68.7	71.3	67.6
Tung oil	14.7	15.7	18.8	18.9	17.5	14.8	17.3	13.0	12.4
Perilla oil	1.8	2.4	4.6	4.0	8.5	13.6	4.7	6.2	6.3
Fish oil	4.4	4.1	4.1	4.2	4.6	5.1	5.3	4.4	5.2
Soybean oil	1.5	2.4	2.6	2.3	2.5	2.2	2.1	2.8	3.5
Castor oil	.3	.3	.5	.5	.6	.6	1.0	1.0	1.5
Oiticica oil	---	---	---	---	---	.4	.4	.8	2.3
Other fats and oils	.2	.5	.4	.7	.6	1.7	.5	.5	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Paint and varnish									
Linseed oil	78.4	76.9	72.0	72.0	67.2	63.1	68.8	72.0	68.1
Tung oil	15.6	16.3	19.3	19.2	18.4	16.1	19.0	14.3	14.0
Perilla oil	2.0	2.3	4.1	3.7	8.2	13.1	4.1	5.8	5.6
Fish oil	2.3	1.9	1.9	2.3	3.0	3.5	3.9	2.8	3.7
Soybean oil	1.2	1.8	1.9	2.1	2.1	2.2	2.3	2.7	3.2
Castor oil	.3	.4	.4	.5	.6	.6	.9	.9	1.7
Oiticica oil	---	---	---	---	---	.4	.5	.9	2.8
Other fats and oils	.2	.4	.4	.2	.5	1.0	.5	.6	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Linoleum and oilcloth									
Linseed oil	65.2	56.3	47.2	47.3	51.6	49.2	66.3	64.9	63.1
Fish oil	20.2	20.8	18.9	19.6	17.1	15.9	16.3	16.2	16.1
Perilla oil	1.0	2.9	8.3	6.6	11.9	17.4	7.8	8.1	10.0
Tung oil	9.9	12.7	16.8	19.0	12.8	7.0	7.0	4.8	3.5
Soybean oil	3.6	7.1	8.1	4.2	5.9	2.8	.9	4.2	6.0
Other fats and oils	.1	.2	.7	3.3	.7	7.7	1.7	1.8	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Printing inks									
Linseed oil	88.7	87.0	81.0	81.1	79.3	74.1	77.6	76.8	76.6
Tung oil	7.3	6.8	11.3	10.7	11.2	11.5	10.5	9.5	9.2
Perilla oil	.3	1.4	3.1	3.7	4.6	9.6	6.7	8.1	8.4
Other fats and oils	3.7	4.8	4.6	4.5	4.9	4.8	5.2	5.6	5.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Computed from data shown in preceding tables and from similar data given in The Fats and Oils Situation for May 1939.

Table 9.-Flaxseed: Production in specified countries and estimated world total excluding U.S.S.R. and China, 1925-39

Year	Estimated world total, excl. U.S.S.R. and China	Argentina	British India 1/	United States	Uruguay	Canada
	1,000 bu.	1,000 bu.	1,000 bu.	1,000 bu.	1,000 bu.	1,000 bu.
1925	137,000	75,113	21,160	22,334	2,030	6,237
1926	133,000	80,783	17,080	18,531	1,970	5,995
1927	140,000	82,672	17,440	25,174	1,954	4,885
1928	126,000	78,377	15,080	19,118	2,030	3,614
1929	96,000	50,004	14,080	15,924	3,216	2,060
1930	136,000	78,342	16,840	21,673	5,056	4,399
1931	132,000	89,067	16,640	11,755	4,841	2,465
1932	101,000	62,006	18,160	11,511	1,475	2,719
1933	97,000	62,595	17,600	6,904	2,876	632
1934	113,000	79,720	16,080	5,661	3,402	910
1935	106,000	59,445	17,920	14,520	3,007	1,667
1936	114,000	76,200	16,640	5,273	3,011	1,795
1937	101,000	60,604	17,800	7,089	3,728	775
1938	99,000	55,509	19,440	8,152	4,425	2/ 1,259
1939 3/	100,000	44,368	18,800	20,330	4,693	2,169

Compiled from official sources and reports of the International Institute of Agriculture. Available data for most flaxseed-producing countries for years beginning 1909 are given in The Fats and Oils Situation for January 1940.

1/ Reported production plus Indian official estimates for unreported tracts.

2/ Revised.

3/ Preliminary.

Table 10.-Perilla seed: Production in Manchuria and Chosen, 1933-39

Year	Total	Manchuria	Chosen
	1,000 lb.	1,000 lb.	1,000 lb.
1933	122,527	110,230	12,297
1934	149,463	138,259	11,204
1935	409,541	399,033	10,508
1936	333,689	323,139	10,550
1937	275,632	264,552	11,080
1938	265,989	255,734	10,255
1939	1/ 165,000	2/ 154,322	3/

Compiled from official sources. In addition to the above, production in Japan is reported to total about 400,000 pounds annually. Production in other countries is negligible.

1/ Tentative estimate.

2/ Preliminary.

3/ Not available.

Table 11.- Tung oil: Exports from China, by countries of destination, 1912-39 1/

Year	Total	United States 2/	Hong Kong	Germany	United Kingdom	France	Nether-lands
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
1912	77,709	41,057	6,940	9,162	7,854	2,014	3,902
1913	61,820	41,499	3,759	4,883	3,845	1,062	2,680
1914	58,607	35,464	4,850	5,563	5,154	1,103	3,088
1915	41,379	28,789	4,550	---	5,884	532	---
1916	68,690	53,963	8,096	---	1,511	480	112
1917	53,515	40,174	8,318	---	2,611	392	---
1918	65,180	32,058	17,080	---	3,954	1,648	---
1919	81,794	41,221	11,651	---	6,193	1,909	328
1920	72,095	50,660	10,385	2,162	3,761	675	712
1921	55,940	29,761	6,365	9,440	5,686	439	3,315
1922	99,409	82,176	6,011	5,071	2,327	1,397	700
1923	111,585	79,150	14,510	8,671	6,497	886	685
1924	119,472	83,605	9,860	10,571	7,121	2,192	1,063
1925	119,210	94,146	3,871	8,463	5,145	1,897	1,388
1926	99,758	72,002	7,138	6,134	6,488	2,671	2,075
1927	120,173	76,309	17,824	7,253	5,957	1,825	7,680
1928	145,907	98,699	18,449	5,718	13,316	2,294	3,443
1929	142,620	98,033	16,649	3,192	11,205	3,339	4,419
1930	155,634	116,534	7,390	4,809	12,564	4,106	4,908
1931	115,315	73,280	11,144	3,673	13,284	2,127	6,062
1932	107,036	66,106	10,985	2,578	11,471	2,304	7,914
1933	166,246	117,213	14,951	3,169	10,115	4,950	9,070
1934	143,924	90,475	19,080	4,959	6,902	7,021	6,848
1935	162,890	108,466	19,286	6,379	8,058	6,868	4,543
1936	191,223	137,317	13,265	9,470	8,344	8,144	3,621
1937	227,027	141,343	46,818	9,438	8,119	8,190	1,323
1938 3/	153,391	12,538	123,039	3,264	4,467	2,380	774
1939 3/	73,858	1,538	66,284	626	1,375	11	233

Continued -

Table 11.- Tung oil: Exports from China, by countries of destination, 1912-39 1/ - Continued

Year	Japan 4/	Denmark	Norway	Sweden	Australia 5/	Belgium	Italy	Argentina	Other countries 6/
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
1912	385	68	---	---	68	4,390	552	---	1,317
1913	116	24	---	13	60	2,883	33	---	963
1914	122	---	---	---	118	2,127	79	---	934
1915	717	297	---	---	123	---	96	---	391
1916	3,755	116	---	---	84	---	173	---	400
1917	124	---	---	---	16	---	52	---	1,828
1918	2,295	217	---	---	24	---	178	---	7,726
1919	2,278	326	---	---	23	586	79	---	17,200
1920	1,217	448	---	---	146	750	348	---	831
1921	66	236	45	---	62	294	184	---	47
1922	96	389	23	---	249	317	395	---	258
1923	53	290	101	---	132	99	261	---	250
1924	1,587	557	172	146	162	353	819	---	1,264
1925	801	350	90	129	388	355	594	---	1,593
1926	1,024	322	181	201	196	443	504	---	379
1927	877	452	254	321	6	459	733	---	223
1928	1,061	745	356	370	136	303	751	---	266
1929	2,634	646	269	347	235	---	903	---	749
1930	1,437	960	668	392	257	---	845	---	764
1931	1,143	1,588	507	562	292	---	735	---	918
1932	919	1,437	810	364	431	459	528	12	718
1933	1,319	1,443	795	327	493	898	583	34	886
1934	2,047	1,665	1,218	657	547	841	736	88	840
1935	1,740	1,755	1,009	957	791	638	1,187	278	935
1936	2,231	1,922	1,506	1,377	1,364	1,016	306	297	1,043
1937	1,646	1,098	1,072	1,043	1,254	740	1,148	219	3,576
1938 3/	123	377	66	320	128	340	250	56	5,269
1939 3/	63	269	4	207	2	53	240	7	2,946

Compiled from official sources.

1/ Includes Manchuria prior to July 1, 1932.
2/ Includes Hawaii prior to 1932.
3/ Preliminary.
4/ Includes Taiwan.
5/ Includes New Zealand.
6/ Includes British India, Finland, French Indo-China, Kwantung, Danzig, Poland, Canada, Spain, Netherlands Indies, Straits Settlement, Union of South Africa, Macao, and Kwangchowwan Leased Territory.

Table 12.-Oleomargarine: Production and materials used in manufacture, United States, March 1938 and 1939, January-March 1940

Item	Mar.		1940 1/		
	1938	1939	Jan.	Feb.	Mar.
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Production:					
Colored	161	137	150	169	138
Uncolored	40,813	29,210	29,204	29,309	26,503
Total 2/	40,974	29,348	29,354	29,477	26,641
Materials used:					
Oleo oil	1,353	1,326	1,144	1,337	1,317
Oleostearine	264	271	265	261	242
Lard, neutral	155	112	241	333	301
Oleo stock	109	95	120	105	96
Total animal	1,881	1,804	1,770	2,036	1,956
Cottonseed oil	16,327	9,678	10,077	10,200	9,022
Soybean oil	2,514	5,452	8,973	8,657	7,169
Peanut oil	525	203	166	153	146
Corn oil	4	51	84	89	87
Vegetable gum	---	---	---	1	1
Total domestic vegetable	19,370	15,384	19,300	19,100	16,425
Coconut oil	9,555	4,729	2,051	1,841	2,464
Babassu oil	1,145	1,596	692	770	526
Palm-kernel oil	1,238	173	---	---	---
Palm oil	---	---	---	---	1
Rice oil	17	---	---	---	---
Total foreign vegetable	11,955	6,498	2,743	2,611	2,991
Total fats and oils	33,206	23,686	23,813	23,747	21,372
Milk	7,605	5,861	5,696	5,761	5,074
Salt and other miscellaneous	1,773	1,316	1,307	1,332	1,166

Compiled from Bureau of Internal Revenue records and Internal Revenue Bulletin.

1/ Preliminary.

2/ Total of unrounded numbers.